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GOODYEAR ATOMIC CORPORATION

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WASHINGTON POST QUESTION #4

Department of Energy
Oak Ridge Operations
Enriching Operations Division
P. O. Box E
Oak Ridge, TN 37830

Attention Mr. H. D. Fletcher, Director

Gentlemen:

INDUSTRIAL HYGIENE SURVEY OF NICKEL SPRAYING

In response to your letter of May 20, 1982 (SE-334:AWT), a comprehensive industrial hygiene survey of the nickel spraying room has been conducted. While we are anticipating an intensive review of the findings with members of your staff during the upcoming industrial hygiene appraisal, a brief synopsis of the major findings is presented below.

The comprehensive survey indicated maximum calculated exposure levels approximately 15 times the TWA exposure limits for nickel for the spraying operator and maximum exposure levels five to seven times the TWA exposure limits for the operator assistant. The use factors for the nickel spraying operator indicate only 15 hours actual usage per month. Additionally, the operation is divided among four to six persons. Based on the concentrations monitored, the use factors and the effectiveness of the personnel protective equipment employed, the installation of engineering controls does not appear to be cost effective. While the use of engineering controls could potentially reduce airborne concentrations by some percentage, they would not, in our judgment, be capable of reducing nickel levels to a point where respiratory protection would not be required. In support of this assessment, two prestigious industrial hygiene references[1,2] recommend the use of supplied-air respiratory protection for the operator of metallizing spray equipment when spraying toxic metals, such as nickel. In fact, these references recommend supplied-air respiratory protection even when the operation is carried out in a specifically-designed metallizing spray booth.

As part of the industrial hygiene survey, the adequacy of the personnel protective equipment currently utilized was assessed relative to worst-case exposure scenarios. The worst-case potential exposure for one work day is

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calculated to be 15 times the TWA for the operator and five to seven times the TWA for the assistant. At these levels, the supplied-air respirator for the operator provides a wide margin of safety and the half-face respirator is adequate for the assistant. As noted previously, actual TWAs, as measured, are much less than the calculated maximums. In addition, company-supplied welders' coveralls, leather gloves, a face shield for the assistant and welders' glasses provided adequate skin and body protection.

We look forward to discussing these findings in greater detail with your staff during the upcoming industrial hygiene appraisal.

Very truly yours,

GOODYEAR ATOMIC CORPORATION

Original Signed By
R. L. Shepler
for
N. H. Hurt
General Manager

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[1] G. D. Clayton and F. E. Clayton. Patty's Industrial Hygiene and Toxicology: General Principles, Vol. 1, 3d ed., John Wiley and Sons, New York, 1978, p 1171.

[2] Committee on Industrial Ventilation, Industrial Ventilation: A Manual of Recommended Practice, 16 ed., American Conference of Governmental Industrial Hygienists, Lansing, MI, 1980, VS-415. p. 5-54